CHAPTER 6

RESTORATION STRATEGIES IN THE LAKE BARKLEY RIVER WATERSHED

6.1. BACKGROUND.

The Watershed Water Quality Management Plan serves as a comprehensive inventory of resources and stressors in the watershed, a recommendation for control measures, and a guide for planning activities in the next five-year watershed cycle and beyond. Water quality improvement will be a result of implementing both regulatory and nonregulatory programs.

In addition to the NPDES program, some state and federal regulations, such as the TMDL and ARAP programs, address point and nonpoint issues. Construction and MS4 storm water rules (implemented under the NPDES program) have transitioned from Phase 1 to Phase 2. More information on storm water rules may be found at: http://www.state.tn.us/environment/wpc/stormh2o/.

This Chapter addresses point and nonpoint source approaches to water quality problems in the Tennessee portion of the Lake Barkley Watershed as well as specific NPDES permittee information.

6.2. COMMENTS FROM PUBLIC MEETINGS. Watershed meetings are open to the public, and most meetings were represented by citizens who live in the watershed, NPDES permitees, business people, farmers, and local river conservation interests. Locations for meetings were chosen after consulting with people who live and work in the watershed. Everyone with an interest in clean water is encouraged to be a part of the public meeting process. The times and locations of watershed meetings are posted at: http://www.state.tn.us/environment/wpc/watershed/public.shtml.

6.2.A. Year 1 Public Meeting. The first Lake Barkley Watershed public meeting was held on December 5, 2000, at the Houston County Board of Education Building in Erin. The goals of the meeting were to: (1) present, and review the objectives of the Watershed Approach, (2) introduce local, state, and federal agency and nongovernmental organization partners, (3) review water quality monitoring strategies, and (4) solicit input from the public.

Major Concerns/Comments

- How does WPC assess lakes?
- Is the COE proceeding with plans to charge public water supplies for water withdrawal from their reservoirs (collect a storage fee)?

6.2.B. Year 3 Public Meeting. The second Lake Barkley Watershed public meeting was held on October 10, 2002, at the Stewart County Public Library in Dover. The goals of the meeting were to: (1) provide an overview of the watershed approach, (2) review the monitoring strategy, (3) summarize the most recent water quality assessment, (4) discuss the TMDL schedule and citizens' role in commenting on draft TMDLs, and (5) discuss BMPs and other nonpoint source tools available through the Tennessee Department of Agriculture 319 Program and NRCS conservation assistance programs.

Major Concerns/Comments

- Tobacco farms draw water for irrigation and return water has pesticides and fertilizers entering rivers and lakes.

6.2.C. Year 5 Public Meeting. Not yet scheduled.

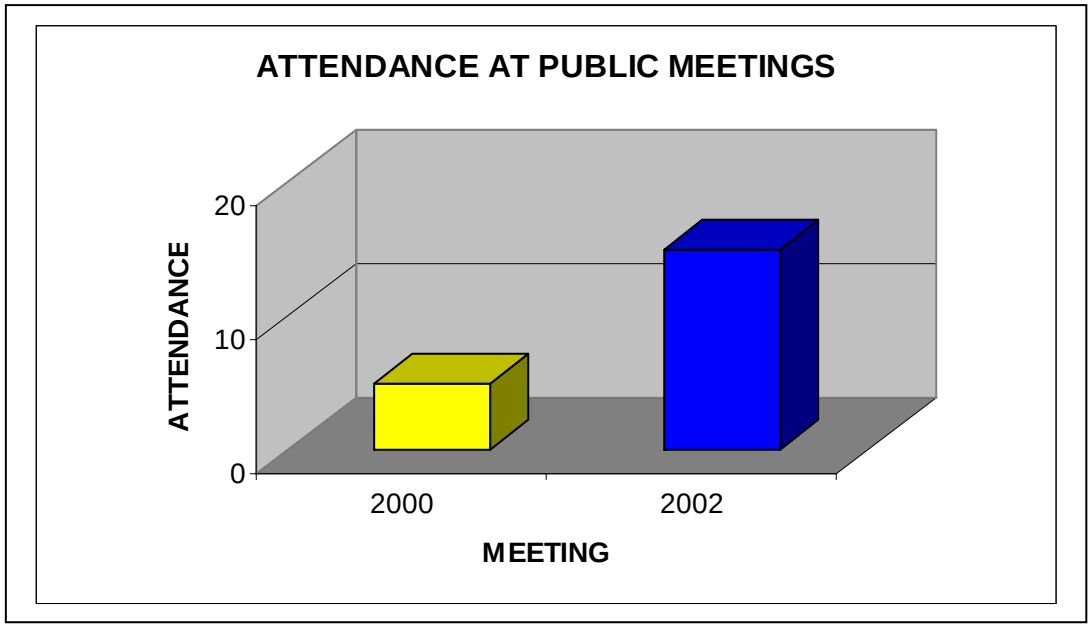

Figure 6-1. Attendance at the Lake Barkley Watershed Public Meetings. *Attendance numbers do not include TDEC personnel.*

6.3. APPROACHES USED.

6.3.A. Point Sources. Point source contributions to stream impairment are primarily addressed by NPDES and ARAP permit requirements and compliance with the terms of the permits. Notices of NPDES and ARAP draft permits available for public comment can be viewed at http://www.state.tn.us/environment/wpc/wpcppo/. Discharge monitoring data submitted by NPDES-permitted facilities may be viewed at http://www.epa.gov/enviro/html/pcs/pcs_query_java.html.

The purpose of the TMDL program is to identify remaining sources of pollution and allocate pollution control needs in places where water quality goals are still not being achieved. TMDL studies are tools that allow for a better understanding of load reductions necessary for impaired streams to return to compliance with water quality standards. More information about Tennessee's TMDL program may be found at:
http://www.state.tn.us/environment/wpc/tmdl/.

Approved TMDL:

Lake Barkley - Total Maximum Daily Load for E. Coli in the Barkley Reservoir Watershed in Cheatham, Dickson, Houston, Humphreys, Montgomery, Robertson and Stewart Counties. Approved 12/26/2007.
http://state.tn.us/environment/wpc/tmdl/approvedtmdl/BarkleyEcoli.pdf

TMDLs are prioritized for development based on many factors.

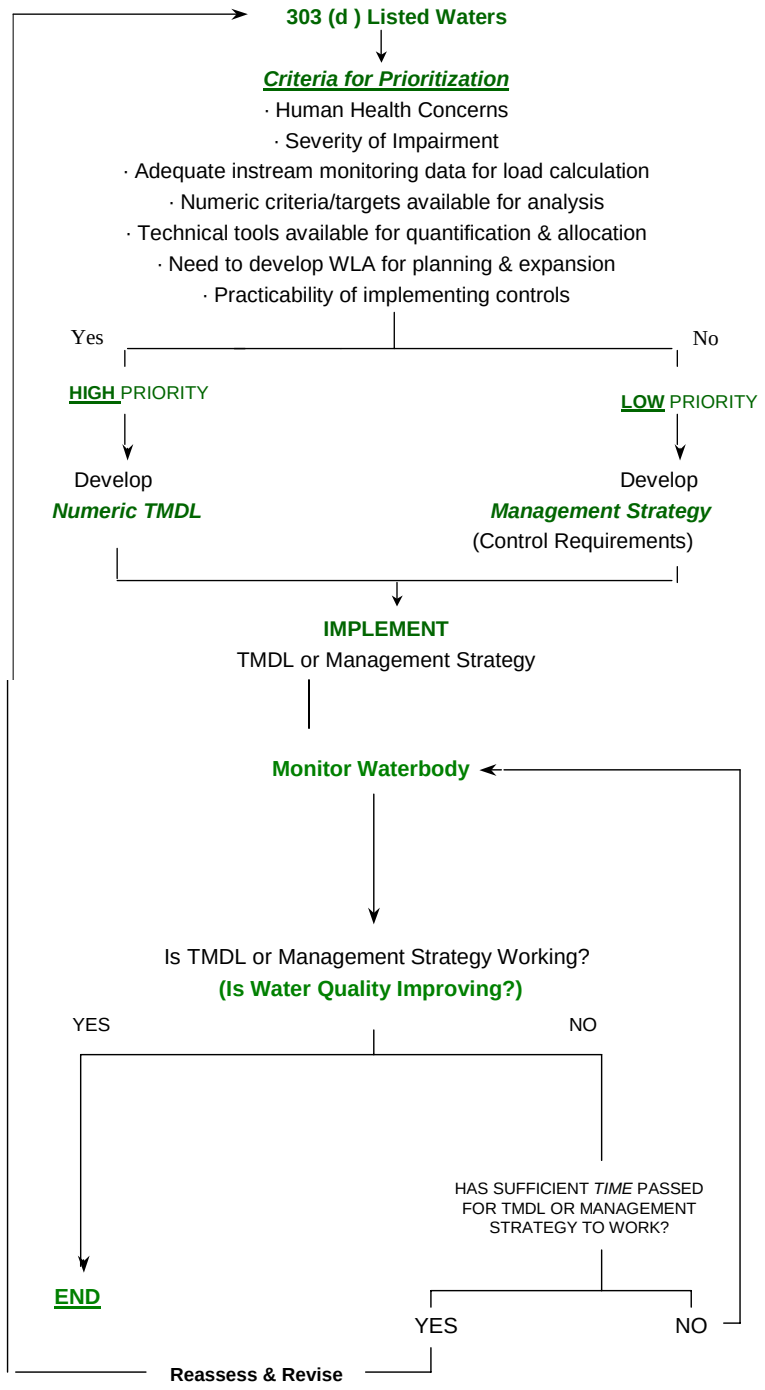

Figure 6-2. Prioritization Scheme for TMDL Development.

6.3.B. Nonpoint Sources

Common nonpoint sources of pollution in the Lake Barkley Watershed include urban storm water runoff, riparian vegetation removal and other habitat alterations, and inappropriate land development, road construction, and agricultural practices. Since nonpoint pollution exists essentially everywhere rain falls, existing point source regulations can have only a limited effect. Other measures are, therefore, necessary.

There are several state and federal regulations that address contaminants impacting waters in the Lake Barkley Watershed. Many of these are limited to point sources: pollution coming from a pipe or ditch. Often, controls of point sources are not sufficient to protect waters, so other measures are necessary. Some measures include efforts by landowners and volunteer groups, and the possible implementation of new regulations. Many agencies, such as the Tennessee Department of Agriculture (TDA) and the Natural Resources Conservation Service (NRCS), offer financial assistance to landowners for corrective actions (like Best Management Practices) that may be sufficient for recovery of impacted streams. Many nonpoint problems will require an active civic involvement at the local level geared towards establishment of improved zoning guidelines, building codes, streamside buffer zones and greenways, and general landowner education.

The following text describes types of impairments, possible causes, and suggested improvement measures. Restoration efforts should not be limited to only those streams and measures suggested below.

6.3.B.i. Sedimentation.

6.3.B.i.a. From Construction Sites. Construction activities have historically been considered “nonpoint sources.” In the late 1980’s, EPA designated them as being subject to NPDES regulation if more than 5 acres were being disturbed. In the spring of 2003, that threshold became 1 acre. The general permit issued for such construction sites establishes conditions for maintenance of the sites to minimize pollution from storm water runoff, including requirements for installation and inspection of erosion prevention and sediment controls. Also, the general permit imposes more stringent inspection, design criteria, sediment control measures, and self-monitoring requirements on sites in the watershed of streams that are already impaired due to sedimentation or are considered high quality. Regardless of the size, no construction site is allowed to cause a condition of pollution.

Beginning in 2003, the state began requiring some municipalities to obtain coverage under a permit designed to address nonpoint runoff issues: the General NPDES Municipal Separate Storm Sewer System Permit, commonly known as MS4 (see section 6.3.B.viii). Among other requirements, this permit directs the holder to develop a comprehensive storm water management program, including the adoption of local regulatory ordinances governing land disturbance near streams, and regular inspection of construction sites and other discharges into their storm sewers. Construction sites within a sediment-impaired watershed may also have higher priority for inspections by WPC and MS4 personnel, and are likely to have enforcement actions for failure to control erosion.

Given the low population densities and rural nature of the area, most of the Lake Barkley Watershed is not covered by an active local MS4 program, with the notable exceptions of the City of Clarksville and the Ft. Campbell Military Reservation, both of which have highly urbanized areas that discharge storm water into watershed streams. In addition, the non-incorporated areas of Montgomery County are also covered under an MS4 permit.

In general, however, most of the rapid and large-scale land development in the greater Clarksville region is occurring in the Red River Watershed, and only a relatively small number of streams within the Lake Barkley watershed have been directly impacted by construction activities, including the Big McAdoo drainage and Wall Branch. There are indications however, that there will be large-scale "second-home" developments along much of the lower end of Lake Barkley in Stewart County in the coming years, which would have the potential to impact many near-pristine streams in the area.

6.3.B.i.b. From Channel and/or Bank Erosion. Many streams within the Lake Barkley Watershed suffer from varying degrees of stream bank erosion. When stream channels are altered, banks can become unstable and highly erodable. Heavy livestock traffic can also severely disturb banks. When large tracts of land are cleared of vegetation (especially trees) and replaced with impermeable surfaces like asphalt and rooftops, the large increases in the velocities and volumes of storm water runoff can also overwhelm channel and bank integrity because destabilized banks contribute to sediment loadings and to the loss of beneficial riparian vegetation.

Some improper agricultural practices, overzealous land development, and failure to properly manage storm water runoff have impacted the hydrology and morphology of many stream channels in the Lake Barkley watershed. Once destablized, bank erosion and stream widening can progress rapidly, and is often difficult to repair.

Unpermitted gravel dredging can also severely disturb stream banks. Destabilized banks contribute to sediment load and to the loss of beneficial riparian vegetation to the stream. The historical removal of cobble and rock from stream channels has resulted in destabilization of stream channels and aggressive erosion of stream banks. This is a serious problem in several streams in this area, including many in the Yellow Creek basin.

Several agencies such as the NRCS, USCOE, TDA, and the Tennessee Stream Mitigation Program, as well as citizen watershed groups, are working to stabilize portions of stream banks using bioengineering and other techniques. Many affected streams would benefit from these types of projects.

Some methods or controls that might be necessary to address common problems are:

Voluntary Activities

- Re-establish bank vegetation, and stabilize banks through bioengineering techniques. Just about every stream in the watershed would benefit from this type of activity, be it landowner management, or large-scale restoration project*).*

- Establish off-channel watering areas for livestock by moving watering troughs and feeders back from stream banks, or at least limit cattle access to restricted areas with armored banks entry (East Fork Yellow Creek, Wells Creek).

Regulatory Strategies

- Increase efforts in the Master Logger program to recognize impaired streams and require more effective management practices within streamside management zones. (Rural areas of Stewart and Houston Counties still have fairly active logging industries)
- Require post-construction run-off rates to be no greater than pre-construction rates in order to avoid in-channel erosion (Wall Branch, Big McAdoo).
- Limit road and utility crossings of streams through better site design (This emphasis of site design is especially crucial within municipal zoning, codes, and permit review process).
- Restrict the use of off-highway vehicles on stream banks and in stream channels. (More rural areas such as Yellow Creek, Lick Creek, and Bartons Creek watersheds).
- Limit clearing of stream and roadside ditch banks or other alterations (Watershed-wide issue, including smaller tributaries to the Cumberland River). *Note: Permits may be required for any work along streams.*
- Encourage or require strong local buffer ordinances, especially dealing with post-construction, no-disturb easements.
- Restrict rock harvesting to permitted sites.

Additional Strategies

- Better community planning and MS4 oversight for the impacts of development on small streams, especially development in the smaller towns currently without MS4 programs, such as Dover, Erin, and Cumberland City.

6.3.B.i.c. From Agriculture and Silviculture. The Water Quality Control Act exempts normal agricultural and silvicultural practices that do not result in a point source discharge. Nevertheless, efforts are being made to address impacts due to these exempted practices.

The Master Logger Program has been in place for several years to train loggers how to install Best Management Practices that lessen the impact of logging activities on streams. Recently, laws and regulations established the authority for the Commissioners of the Departments of Environment and Conservation and of Agriculture to stop the logging operation that, upon failing to install these BMPs, is causing impacts to streams.

Since the Dust Bowl era, the agriculture community has strived to protect the soil from wind and water erosion. Agencies such as the Natural resources Conservation Service (NRCS), the University of Tennessee Agricultural Extension Service, and the Tennessee Department of Agriculture are striving to identify better ways of farming, to educate the farmers, and to install the methods that address the sources of some of the impacts due to agriculture. Cost sharing is available for many of these measures.

Many sediment problems traceable to agricultural practices also involve riparian loss due to close row cropping or pasture clearing for grazing. Lack of vegetated buffers along stream corridors due to agricultural land uses is a problem in large areas of the Lake

Barkley Watershed. Many streams, such as Yellow Creek, Brush Creek, Budds Creek, Little Bartons Creek, and Antioch Creek, could benefit from the establishment of more extensive riparian buffer zones on farmland.

6.3.B.i.d. From Point Sources. Several permitted discharges within the Lake Barkley Watershed discharge suspended solids under the conditions of an NPDES permit and are reviewed during the watershed cycle for reissuance. Many of these facilities fall under Industrial Storm Water permit coverage. Common types of industries that may discharge solids include rock quarries, concrete plants, water treatment facilities, ore processing, and automotive washing operations.

6.3.B.ii. Pathogen Contamination.

Possible sources of pathogens are inadequate or failing septic tank systems, overflows or breaks in public sewer collection systems, poorly disinfected discharges from sewage treatment plants, and fecal matter from pets, livestock and wildlife washed into streams and storm drains. When fecal bacterial levels are shown to be consistently elevated to dangerously high levels, especially in streams with high potential for recreational uses, the division must post signage along the creek, warning the public to avoid contact. Once pathogen sources have been identified and corrected, and pathogen level reductions are documented, the posting is lifted.

Permits issued by the Division of Water Pollution Control regulate discharges from point sources and require adequate control for these sources. Individual homes are required to have subsurface, on-site treatment (i.e., septic tank and field lines) if public sewers are not available. The Division of Ground Water Protection within the Nashville Environmental Field Offices and delegated county health departments regulate septic tanks and field lines. In addition to discharges to surface waters, businesses may employ subsurface treatment for domestic wastewater or surface discharge of treated process wastewater. The Division of Water Pollution Control regulates surface water discharges and near-surface land application of treated wastewater.

Currently, only three streams within the Lake Barkley Watershed are known to have excessive pathogen contamination: Wall Branch, East Fork Yellow Creek, and Wells Creek. Wall Branch and Wells Creek are impacted by urban areas, with contributions of bacterial contamination coming from storm water runoff, sewage collection system leaks, or failing septic tanks. The elevated bacteria levels in East Fork Yellow Creek are most likely due to livestock waste. Many streams in the remaining agricultural watersheds also generally show elevated bacterial levels shortly after rainstorms due to the influx of contaminated storm water.

Some measures that may be necessary to control pathogens are:

Voluntary Activities

- Clean up pet waste. This has been found to be a surprisingly important source of fecal contamination in highly urbanized watersheds
- Repair failed septic systems.
- Limit livestock access to streams and restrict stream crossings (much of the Yellow Creek drainage, including the East Fork).

Regulatory Strategies

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Determine timely and appropriate enforcement for non-complying sewage treatment plants, large and small, and their collection systems.
- Require comprehensive pathogen source identification and elimination procedures to be implemented by municipal MS4 storm water programs.
- Identify Concentrated Animal Feeding Operations not currently permitted.

Additional Strategies

- Develop intensive planning in areas where sewer is not available and treatment by subsurface disposal is not an option due to poor soils, floodplains, or high water tables.
- Develop and enforce leash laws and controls on pet fecal material.
- Greater efforts by sewer utilities to identify leaking lines or overflowing manholes (Wall Branch).
- Review the pathogen limits in discharge permits to determine the need for further restriction.

6.3.B.iii. Excessive Nutrients and/or Dissolved Oxygen Depletion.

These two impacts are usually listed together because high nutrients often contribute to low dissolved oxygen within a stream. Since nutrients often have the same source as pathogens, the measures previously listed can also address many of these problems. Elevated nutrient loadings are also often associated with urban runoff from impervious surfaces, from fertilized lawns and croplands, and faulty sewage disposal processes. Nutrients are often transported with sediment, so many of the measures designed to reduce sediment runoff will also aid in preventing organic enrichment of streams and lakes.

Dissolved oxygen depletion can also be due to the direct discharge of nutrients or other biodegradable materials by point sources. Limits in NPDES permits placed on parameters such as nitrates, ammonia, phosphorous, Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD), are designed to restrict the amounts of these pollutants to assimilative levels

Some sources of nutrients can be addressed by:

Voluntary Activities

- Educate homeowners and lawn care companies in the proper application of fertilizers.
- Encourage landowners, developers, and builders to leave stream buffer zones. Streamside vegetation can filter out many nutrients and other pollutants before they reach the stream. These riparian buffers are also vital along livestock pastures. Many streams in the Lake Barkley Watershed within agricultural areas would benefit from additional riparian buffers.
- Use grassed drainage ways that can remove fertilizer and sediment before it enters streams.

- Use native plants for landscaping since they don't require as much fertilizer and water.
- Develop better overall storm water management in urban and residential areas, including retrofitting existing commercial lots, homes, and roadways with storm water quality and quantity BMPs. This would especially improve the urban streams and lakes currently polluted by excessive nutrient and sediment inputs

Physical changes to streams can prevent them from providing enough oxygen to biodegrade the materials that are naturally present. A few additional actions can address this problem:

- Maintain shade over a stream. Cooler water can hold more oxygen and retard the growth of algae. As a general rule, all stream channels will suffer from canopy removal. An intact riparian zone also acts as a buffer to filter out nutrient loads before they enter the water.
- Discourage impoundments and instead encourage filtration basins/ constructed wetlands. Ponds and lakes do not aerate water, and cause many water quality problems downstream. *Note: Permits may be required for any work on a stream, including impoundments.*

Regulatory Strategies.

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Impose more stringent permit limits for nutrients discharged from sewage treatment plants
- Impose timely and appropriate enforcement for noncomplying sewage treatment plants, large and small, and their collection systems (Wall Branch).
- Identify Concentrated Animal Feeding Operations (CAFO) not currently permitted, or any Animal Feeding Operations (AFO) that contribute to stream impacts and declare them as a CAFO requiring a permit.
- Support and train local MS4 programs within municipalities to deal with storm water pollution issues and require additional storm runoff quality control measures (Big McAdoo Creek).
- Require nutrient management plans for all golf courses.

Additional Strategies

- Encourage TDA- and NRCS-sponsored educational programs targeted to agricultural landowners and aimed at better nutrient management, as well as information on technology-based application tools.

6.3.B.iv. Toxins and Other Materials.

Although some toxic substances are discharged in small quantities directly into waters of the state from a point source, much of these materials are washed in during rainfalls from an upland location, or via improper waste disposal that contaminates groundwater. In the Lake Barkley Watershed, very few streams are damaged by toxins in storm water runoff from industrial facilities or urban areas. More stringent inspection and regulation of permitted industrial facilities, and local storm water quality initiatives and regulations, could help reduce the amount of contaminated runoff reaching state waters.

Individuals may also cause contaminants to enter streams by activities that may be attributed to apathy or the lack of knowledge or civility. Litter in roadside ditches, garbage bags tossed over bridge railings, paint brushes washed off over storm drains, and oil drained into ditches are all blatant examples of pollution in streams. Misapplication of chemicals, on agricultural and suburban areas, is another source of toxins.

Some of these problems can be addressed by:

Voluntary Activities

- Provide public education.
- Paint warnings on storm drains that connect to a stream.
- Sponsor community clean-up days.
- Landscape public areas.
- Encourage public surveillance of their streams and reporting of dumping activities to their local authorities.
- Encourage local municipalities to provide more convenient public disposal sites, especially for hazardous wastes.

Regulatory Strategies

- Continue to prohibit illicit discharges to storm drains and to search them out.
- Strengthen litter law enforcement at the local level.
- Increase the restrictions on storm water runoff from industrial facilities.

6.3.B.v. Habitat Alteration.

The alteration of the habitat within a stream can have severe consequences. Whether it is the removal of the vegetation, providing a root system network for holding soil particles together, the release of sediment, which increases the bed load and covers benthic life and fish eggs, the removal of gravel bars, “cleaning out” creeks with heavy equipment, or the impounding of the water in ponds and lakes, many alterations impair the use of the stream for designated uses. Habitat alteration also includes the draining or filling of wetlands.

Many streams within the Lake Barkley Watershed suffer from some degree of habitat alteration, especially riparian loss and bank disturbances from agricultural practices. As described in earlier sections, besides the direct loss of habitat, these types of disturbances also affect sediment and nutrient loadings, water temperatures, oxygen levels, storm water filtration, and nuisance algae growths.

Illicit gravel dredging is a particularly widespread and serious problem in the Lake Barkley Watershed due to the abundance of gravel substrate in streams in this area and their relative remoteness. “Wildcat” dredgers can do a devastating amount of damage to a localized area, then pack up and leave within a short period of time, making enforcement difficult. Streams affected by chronically recurring dredging operations include Yellow Creek and Half Pone Creek.

Although large-scale public projects such as highway construction can alter significant portions of streams, individual landowners and developers are responsible for the vast majority of stream alterations. Some measures that can help address these problems are:

Voluntary Activities

- Organize stream cleanups removing trash, limbs and debris before they cause blockage.
- Avoid use of heavy equipment to "clean out" streams. *Instream work other than debris removal will require an Aquatic Resource Alteration Permit (ARAP).*
- Plant native vegetation along historically altered streams to stabilize banks and provide habitat (Budds Creek, Antioch Creek, among many others).
- Encourage developers to use better site design and avoid extensive use of culverts or channel relocations in streams.

Regulatory Strategies

- Restrict modification of streams by means such as culverting, lining, or impounding.
- Require mitigation for impacts to streams and wetlands when modifications are allowed.
- Require permitting of all rock harvesting operations.
- Increased enforcement may be needed when violations of current regulations occur, especially for illicit gravel dredging.

6.3.B.viii. Local Storm Water Management.

MS4 discharges are regulated through the Phase I or II NPDES-MS4 permits. These permits require the development and implementation of a Storm Water Management Program (SWMP) that will reduce the discharge of pollutants to the maximum extent practicable and not cause or contribute to violations of state water quality standards. The NPDES General Permit for Discharges from Phase I and II MSF facilities can be found at:

http://www.state.tn.us/environment/wpc/stormh2o/.

Within the Lake Barkley Watershed, the only areas currently covered by active MS4 Phase II programs are the City of Clarksville, Montgomery County, and Ft. Campbell. They are all three still somewhat in the formative process, and are just reaching the end of their first 5-year permit cycle. All have ongoing initiatives to address storm water runoff quantity and quality, in varying degrees of implementation.

For discharges into impaired waters, the MS4 General Permit requires that SWMPs include a section describing how discharges of pollutants of concern will be controlled to ensure that they do not cause or contribute to instream exceedances of water quality standards. Specific measurements and BMPs to control pollutants of concern must also be identified. In addition, MS4s must implement the proposed waste load allocation provisions of an applicable TMDL (i.e., siltation/habitat alteration, pathogens) and describe methods to evaluate whether storm water controls are adequate to meet the waste load allocation. In order to evaluate SWMP effectiveness and demonstrate

compliance with specified waste load allocations, MS4s are encouraged to develop and implement appropriate monitoring programs by the designated date.

Some storm sewer discharges are not regulated through the NPDES MS4 program. Strategies to address runoff in these urban areas include adapting Tennessee Growth Readiness Program (TGRP) educational materials to the watershed. TGRP is a statewide program built on existing best management practices from the Nonpoint Education for Municipal Officials program and the Center for Watershed Protection. TGRP developed the program to provide communities and counties with tools to design economically viable and watershed friendly developments. The program assists community leaders in reviewing current land use practices, determining impacts of imperviousness on watershed functions, and allowing them to understand the economics of good watershed management and site design.

6.4. PERMIT REISSUANCE PLANNING

Under the *Tennessee Water Quality Control Act*, municipal, industrial and other dischargers of wastewater must obtain a permit from the Division. Approximately 1,700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES). These permits establish pollution control and monitoring requirements based on protection of designated uses through implementation of water quality standards and other applicable state and federal rules.

The following three sections provide specific information on municipal, industrial, and water treatment plant active permit holders in the Tennessee Portion of the Lake Barkley Watershed. Compliance information was obtained from EPA's Permit Compliance System (PCS). All data was queried for a five-year period between January 1, 2001 and December 31, 2006. PCS can be accessed publicly through EPA's Envirofacts website. This website provides access to several EPA databases to provide the public with information about environmental activities that may affect air, water, and land anywhere in the United States:

http://www.epa.gov/enviro/html/ef_overview.html

Stream Segment information, including designated uses and impairments, are described in detail in Chapter 3, *Water Quality Assessment of the Lake Barkley Watershed.*

6.4.A. Municipal Permits

TN0064882 Erin STP

Discharger rating: Minor
City: Erin
County: Houston
EFO Name: Memphis
Issuance Date: 3/01/05
Expiration Date: 5/31/10
Receiving Stream(s): Cumberland River at mile 103.7
HUC-12: 051302050401
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: WAS to aerobic dig to dry bed to landfill

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
BOD % removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
BOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
BOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
BOD5	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
BOD5	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
BOD5	All Year	188	lb/day	MAvg Load	3/Week	Composite	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
BOD5	All Year	250	lb/day	WAvg Load	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	3/Week	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	3/Week	Grab	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent

Table 6.1a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
TSS	All Year	250	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
TSS	All Year	188	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
TSS % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6.1b.

Tables 6-1a-b. Permit Limits for Erin STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 5 Biological Oxygen Demand (BOD)
- 3 Total Suspended Solids (TSS)
- 14 Suspended Solids % Removal
- 2 Settleable Solids
- 1 pH
- 50 Overflows
- 54 Bypasses

Comments:
1/10/07 Pretreatment Inspection: In compliance:

- The City has no significant industrial users (SIUs) covered by the pretreatment program, since Southern Gage moved to the industrial park on February 1, 1999, and no longer has an industrial discharge to the City sewer system.
- The Town of Tennessee Ridge, which discharges into the City sewer system, has no significant industrial users.
- The City has continued to perform influent and effluent sampling at the City's wastewater treatment plant semi-annually, and has continued to submit semi-annual reports to our Pretreatment Section. The City should notify WPC's Pretreatment Section if an industry requiring an Industrial User permit should connect to the City sewer system.

7/28/05 Compliance Evaluation Inspection: NOV sent

- Severe I/I, influent flow exceeds design capacity almost daily during winter and spring months, & during rain events throughout the year (one third of the year for 2003 thru 2005), aggressive sewer rehabilitation program needed.
- Influent & effluent flow meters not calibrated.
- Very inadequate O & M, treatment units & structures severely corroded, effluent sampler & pumps out of service, chlorine storage & room hazardous.
- All analysis data invalid for self-monitoring purposes due to failure to follow EPA approved sampling & analysis procedures.
- Loss of solids through effluent discharge / plant washouts during high flow events.

TN0020656 Clarksville STP

Discharger rating: Major
City: Clarksville
County: Montgomery
EFO Name: Nashville
Issuance Date: 6/1/07
Expiration Date: 4/30/10
Receiving Stream(s): Barkley Reservoir at Cumberland River at miles 125.0, 125.4, and 126.2.
HUC-12: 051302050105
Effluent Summary: Treated municipal and partially treated combined wastewater from Outfall 001, treated and limited untreated combined wastewater from Oufalls 002 (Gallows Hollow) and 006 (McClure Street combined sewer vortex separators).
Treatment system: Activated sludge preceded by rotary screening, grit removal and primary clarification and followed by clarification and ultraviolet disinfection.

Segment	TN05130205015_1000
Name	Barkley Reservoir
Size	37000
Unit	Acres
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Industrial Water Supply (Supporting), Domestic Water Supply (Supporting), Irrigation (Supporting)
Causes	N/A
Sources	N/A

Table 6-2. Stream Segment Information for Clarksville STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	10	mg/L	DMax Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year	5	mg/L	MAvg Conc	Weekly	Grab	Effluent
CBOD5	All Year	40	mg/L	DMax Conc	Weekly	Grab	Effluent
CBOD5	All Year	30	mg/L	MAvg Conc	Weekly	Grab	Effluent
D.O.	All Year	6	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	MAvg Ari Mean	Weekly	Grab	Effluent
E. coli	All Year	123	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Continuous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	0.5	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	Weekly	Grab	Effluent
pH	All Year	8.5	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Weekdays	Grab	Effluent

Tables 6-3. Permit Limits for Clarksville STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 21 Fecal coliform
- 19 Total Suspended Solids (TSS)
- 8 Biological Oxygen Demand (BOD)
- 16 Settleable Solids
- 848 Overflows

Enforcement:
Commissioners Order #04-0356: The NPDES permit violations that resulted in this enforcement action include overflows, failure to report, bod, solids and fecal coliform limit violations. This enforcement action was initiated in consultation with EPA. It was initially drafted as director's order 03-067D. It was decided that it would be negotiated as a Consent Order; however, Clarksville did not consent to the terms and therefore was issued as a commissioner's order.

Comments:
12/6/06 Pretreatment Compliance Inspection: In compliance:

The City currently has a total of seven industries under industrial user (IU) permit. Two of these facilities are classified as categorical industrial users.

When the IU permits are reissued the requirements on the non-transferability clause of the permit should be modified. The IU permit should state that the buyer must receive a copy of the permit

Modifications to the pretreatment program, both required and otherwise, are ongoing. Mr. Gray expects to submit all program modifications for review and approval by June 07.

The pretreatment files were found in satisfactory condition. No deficiencies were observed, and the Pretreatment Coordinator reported no problems in implementing the program.

5/9/06 Compliance Sampling Inspection: Both the State and facility laboratory determined all the sampled parameters were in compliance with permit.

TN0024651 Woodlawn School

Discharger rating: Minor
City: Woodlawn
County: Montgomery
EFO Name: Nashville
Issuance Date: 6/1/07
Expiration Date: 4/29/10
Receiving Stream(s): Unnamed tributary at mile 1.8 to Bartee Branch at mile 3.1
HUC-12: 051302050107
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Septic tank, recirculating sand filter and ultraviolet disinfection

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	1.8	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Summer	1.2	mg/L	MAvg Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	3.2	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	2.1	mg/L	MAvg Conc	2/Month	Grab	Effluent
CBOD5	All Year	35	mg/L	DMax Conc	2/Month	Grab	Effluent
CBOD5	All Year	25	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	6	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	MAvg Ari Mean	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.02	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-4. Permit Limits for Woodlawn School.

Comments:
None

TN0024643 Montgomery Central High School

Discharger rating: Minor
City: Cunningham
County: Montgomery
EFO Name: Nashville
Issuance Date: 6/1/07
Expiration Date: 4/29/10
Receiving Stream(s): Unnamed tributary at mile 1.2 to Sulphur Spring Branch at mile 2.9
HUC-12: 051302050103
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended Aeration

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	4	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Summer	2	mg/L	MAvg Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	10	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	5	mg/L	MAvg Conc	2/Month	Grab	Effluent
CBOD5	All Year	40	mg/L	DMax Conc	2/Month	Grab	Effluent
CBOD5	All Year	25	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	6	mg/L	DMin Conc	Weekdays	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.5	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-5. Permit Limits for Montgomery Central High School.

Comments:
Last Inspection – CEI December 7, 2006, NOV sent

- New treatment plant put in service April 2006, design capacity increased from 45,000 GPD to 100,000 GPD, need permit changes to reflect new design capacity.
- Elementary school & middle school now connected to High School STP.
- Serious I/I due to old clay sewer lines & inflow into manholes, storm drains & gutters may also be connected to sewer.
- Occasional effluent violations minimum pH, monthly average ammonia, daily maximum and monthly average suspended solids, and a number of violations of minimum dissolved oxygen limits since the new treatment plant came on line, these may be due to excessive sludge age.

TN0055387 Ramblewood Apartment II, LLC

Discharger rating: Minor
City: Clarksville
County: Montgomery
EFO Name: Nashville
Issuance Date: 1/1/06
Expiration Date: 11/30/10
Receiving Stream(s): Unnamed tributary at mile 0.5 to the Cumberland River at mile 130.2
HUC-12: 051302050103
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	5	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Conc	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.5	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Tables 6-6. Permit Limits for Ramblewood Apartment II, LLC.

Comments:
None

TN0056081 Chad Youth Enhancement Center

Discharger rating: Minor
City: Clarksville
County: Montgomery
EFO Name: Nashville
Issuance Date: 9/1/05
Expiration Date: 9/30/10
Receiving Stream(s): Wet weather conveyance at mile 0.3 to an unnamed tributary at mile 0.4 to Half Pone Creek at mile 7.7
HUC-12: 051302050103
Effluent Summary: Treated municipal and partially treated combined wastewater from Outfall 001, treated and limited untreated combined wastewater from Oufalls 002 (Gallows Hollow) and 006 (McClure Street combined sewer vortex separators).
Treatment system: Extended aeration

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	10	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5	mg/L	MAvg Conc	2/Month	Grab	Effluent
CBOD5	All Year	30	mg/L	DMax Conc	2/Month	Grab	Effluent
CBOD5	All Year	20	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	6	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.5	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-7. Permit Limits for Chad Youth Enhancement Center

Comments
Facility has 6 buildings serving 90 children. The children stay onsite 24 hours per day. System believed to have been installed by the County in the 1960s time frame. Now owned by a private group.

TN0064181 Palmyra Health Care Center

Discharger rating: Minor
City: Palmyra
County: Montgomery
EFO Name: Nashville
Issuance Date: 1/1/06
Expiration Date: 11/30/10
Receiving Stream(s): Cumberland River at mile 114.7
HUC-12: 051302050105
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Septic tank followed by Bio-reel system

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	mg/L	DMax Conc	Monthly	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	Monthly	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	2/Week	Grab	Effluent
E. coli	All Year	487	#/100mL	DMax Conc	Monthly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Monthly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	2/Week	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	2/Week	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	2/Week	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-8. Permit Limits for Palmyra Health Care Center.

Compliance History:
The following numbers of exceedences were noted in PCS:

Enforcement:
Operation & maintence problems, self-monitoring and record keeping deficiencies, BOD, TSS & E. coli violations.
NOV date 9/19/06.
Enforcement request date 9/19/06.

Comments
6/27/07 Compliance Evaluation Inspection:
Continued violations of permit limits, serious deficiencies in self-monitoring program records, contract certified operator is still signing reports as principal executive officer. Plant is old and severely corroded, one bioreel still doesn't work, serious O & M and operational problems. Enforcement request previously submitted September 2006, will provide updated inspection information to Enforcement Section so it can be added to the Order. Will issue 2nd NOV.

6/16/06, Compliance Evaluation Inspection & effluent sampling NOV sent, enforcement action requested

- Aging, severely corroded treatment plant, structural failure of treatment units due to corrosion, inadequate O & M, can't meet effluent limits
- Self-monitoring analysis data questionable or invalid
- Effluent violations for daily maximum & monthly average BOD, daily maximum & monthly average total suspended solids, daily maximum e. coli
- Replacement of treatment system is needed

TN0022667 Dover STP

Discharger rating: Minor
City: Dover
County: Stewart
EFO Name: Nashville
Issuance Date: 6/1/07
Expiration Date: 1/30/10
Receiving Stream(s): Barkley Reservoir at Cumberland River mile 88.6
HUC-12: 051302050405
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Aerobic digester to land application

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
BOD % removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
BOD5	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
BOD5	All Year	66	lb/day	WAvg Load	3/Week	Composite	Effluent
BOD5	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
BOD5	All Year	50	lb/day	MAvg Load	3/Week	Composite	Effluent
BOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
BOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
BOD5	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		Occurrences/Month	MAvg Load	Continuous	Visual	Wet Weather
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	487	#/100mL	DMax Conc	3/Week	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	3/Week	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	66	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent

Tables 6-9.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	50	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
PH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Tables 6-9. Permit Limits for Dover STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 4 Settleable Solids
- 3 Biological Oxygen Demand (BOD)
- 2 Escherichia coli
- 3 Total Suspended Solids (TSS)
- 1 pH
- 1 Suspended Solids % Removal

Enforcement:
9/12/05 - NOV for incomplete permit application.
7/24/06 **-** NOV for sampling, self-monitoring, & recordkeeping deficiencies.

Comments:
Last inspection – PAI / CEI June 1, 2006, NOV sent

- Plans underway to build new SBR treatment plant on same site to replace current STP
- Severe I/I, influent flow exceeds design capacity on a regular basis during rain events & wet weather, aggressive sewer rehabilitation program needed
- Loss of solids through effluent discharge / plant washouts during high flow events
- DO, pH, E-coli & BOD analysis data invalid for self-monitoring purposes due to failure to follow EPA approved sampling & analysis procedures.

08/25/06 - WPC received plans for construction of whole new 0.6 MGD sequencing batch reactor plant (two units) WWTP. Permit modification will be required.

TN0020273 USDA Forest Service, Brandon Springs Camp

Discharger rating: Minor
City: Brandon Springs
County: Stewart
EFO Name: Nashville
Issuance Date: 2/1/06
Expiration Date: 12/29/10
Receiving Stream(s): Barkley Reservoir (Cumberland River) at mile 82.6
HUC-12: 051302050406
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Activated sludge

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	487	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Month	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-10. Permit Limits for USDA Forest Service, Brandon Springs Camp.

Comments:
12/06/06: Compliance Evaluation Inspection:

1. The treatment plant appeared to be operating properly and well maintained. A surge basin at the head of the plant helps to moderate the peak influent flows. The comminutor was working properly. Airflow to the aeration basin was controlled by timer and was working properly, with good air distribution. No problems were observed with the clarifier. Chlorine bleach fed by a flow-proportional metering pump is used for disinfection. Effluent flow is measured by a 90-degree V-notch weir and ultrasonic water level sensor. Waste sludge is removed periodically and taken to a sludge holding lagoon in Kentucky for permanent storage. The treatment plant site perimeter has a wire mesh fence and locked gate for security.

2. WPC staff understands that the Forest Service is considering purchasing a portable generator with the capacity to operate this treatment plant in the event of a power outage. As this plant does not have a standby generator, and has only one source of power to it, a portable generator would be a desirable addition.

3. The clay pipe wastewater collection lines have been subject to high levels of infiltration during wet weather in the past. WPC staff understands that some of these collection lines and a manhole cover were replaced about two years ago. WPC staff understands that the collection line from the kitchen facilities has a grease trap, which is monitored and maintained. These are commendable measures, which help maintain treatment plant performance.

4. The outfall pipe location at Gatlin Point was posted with an identification sign as required by the permit. The lake showed no visible evidence of adverse impact from the treated effluent discharge.

5. Review of the Monthly Operation Reports (MOR/DMRs) received since January 2003 reported no violations of the effluent limits despite flows ranging from a reported low of 200 gallons per day to a reported high of 17,900 gallons per day. The operator explained that the population using the group camp facilities varies widely, hence the wide range of influent flow. The treatment plant performance is excellent and is commended.

TN0025119 Cumberland City Lagoon

Discharger rating: Minor
City: Cumberland City
County: Stewart
EFO Name: Nashville
Issuance Date: 5/31/05
Expiration Date: 5/31/10
Receiving Stream(s): Cumberland River at mile 104.5
HUC-12: 051302050401
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	% Removal
BOD5	All Year	45	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	32	mg/L	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	40	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	28	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	21	lb/day	MAvg Load	Weekly	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	28	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	31	mg/L	DMax Load	Weekly	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	21	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	40	mg/L	WAvg Conc	Weekly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-11. Permit Limits for Cumberland City Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 5 Escherichia coli
- 2 Biological Oxygen Demand (BOD)
- 1 Total Chlorine

Comments

11/22/06 Compliance Evaluation Inspection: In compliance:

1. The wastewater treatment plant consists of a headworks structure with a comminutor, an aerated lagoon, an unaerated lagoon, and a chlorine contact tank with a 22.5 degree V-notch weir with water level monitored by an ultrasonic device. The effluent flow meter had been checked within the past 12 months by Wade Instrument Service. Both the aerated lagoon and the unaerated lagoon are about eight feet deep. The water surface of the unaerated lagoon was covered with duckweed. However, a baffle on the outlet pipe prevented the duckweed from flowing into the chlorine contact chamber. The plant appeared to be operating properly and was well maintained. The plant site has a perimeter security fence with warning signs.

2. Disinfection is by liquid chlorine bleach; the solution pump is paced by the effluent flow meter to achieve flow proportional control.

3. The outfall pipe was posted with an identification sign as required by the permit. The treated effluent was causing no visible adverse impact on the receiving stream (Cumberland River).

4. All required records were being kept and retained. Review of the Monthly Operation Reports (MORs) indicated very good compliance with the permit effluent limits.

5. All three pump stations in the collection system were visited. None have overflow pipes. There was no evidence of overflows. All appeared to be operating properly and well maintained. All are inspected daily and log books kept of these inspections. These are factory built buried dry well/wet well type. The dry well of one of these pump stations was said to be about 30 feet deep. I understand that the City intends to apply for a grant to replace all of these pump stations with a modern type which will have the pumping equipment at ground level, thereby minimizing the safety concerns associated with descending into confined spaces as the present pump stations require for maintenance or repair.

6. WPC staff understands that Mr. Phillip Baggett of Erin currently is the Acting Certified Operator for the wastewater treatment plant and for the collection system, until Mr. Cook obtains these certifications.

6.4.B. Industrial Permits

TN0068144 Cheatham Hydro Power Plant

Discharger rating: Minor
City: Charlotte
County: Dickson
EFO Name: Nashville
Issuance Date: 9/30/05
Expiration Date: 9/29/10
Receiving Stream(s): Cumberland River
HUC-12: 051302050105
Effluent Summary: Noncontact cooling waters, station sump wastewater (which includes waters such as cooling water; river water that has leaked into the plant at various points; river water from unwatering of penstock, scroll case, and draft tube; air compressor blowdown and other condensate; and floor washwater); river water from unwatering operations; river water that has leaked into the plant; backwash of strainers; test waters from fire protection system; spent waters from certain activities outdoors, including pressure washing of painted surfaces, slot cutting the dam and washing equipment from outfalls 001 - 006.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Intake
Flow	All Year		MGD	DMax Load	Annually	Estimate	Effluent
Settleable Solids	All Year		mg/L	MAvg Conc	1/Batch	Grab	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	1/Batch	Grab	Effluent

Table 6-12. Permit Limits for Cheatham Hydro Power Plant.

Comments:
Generation of electric power

TN0029157 Zinifex Clarksville, Inc.

Discharger rating: Major
City: Clarksville
County: Montgomery
EFO Name: Nashville
Issuance Date: 6/1/07
Expiration Date: 11/30/10
Receiving Stream(s): Cumberland River at mile 122 (Outfall 001), unnamed tributary to Cumberland River at mile 122.6 (Outfall 002), unnamed tributary to the Cumberland River at mile 121.1 (Outfalls SW3 & SW5) and unnamed tributary to the Cumberland River at mile 122.6 (Outfalls SW4 & SW6)
HUC-12: 051302050105
Effluent Summary: Process water, sanitary wastewater and cooling water through Outfall 001, demineralized regeneration water, water plant overflow and filter backwash through Outfall 002, storm water runoff and cooling water through Outfalls SW3 and SW4 and storm water runoff though Outfalls SW5 and SW6

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
As (T)	All Year	29.8	lb/day	DMax Load	Semi-annually	Composite	Effluent
As (T)	All Year	13.77	lb/day	MAvg Load	Semi-annually	Composite	Effluent
Cd (T)	All Year	4.4	lb/day	DMax Load	2/Month	Composite	Effluent
Cd (T)	All Year	1.76	lb/day	MAvg Load	2/Month	Composite	Effluent
Cu (T)	All Year	29.52	lb/day	DMax Load	Quarterly	Composite	Effluent
Cu (T)	All Year	14.1	lb/day	MAvg Load	Quarterly	Composite	Effluent
Flow	All Year		MGD	DMax Load	Continuous	Recorder	Effluent
Flow	All Year		MGD	MAvg Load	Continuous	Recorder	Effluent
Pb (T)	All Year	6.28	lb/day	DMax Load	Quarterly	Composite	Effluent
Pb (T)	All Year	2.93	lb/day	MAvg Load	Quarterly	Composite	Effluent
Se (T)	All Year	85.34	lb/day	DMax Load	Semi-annually	Composite	Effluent
Se (T)	All Year	11.02	lb/day	MAvg Load	Semi-annually	Composite	Effluent
TSS	All Year	3723	lb/day	DMax Load	Bi-monthly	Composite	Effluent
TSS	All Year	1876	lb/day	MAvg Load	Bi-monthly	Composite	Effluent
Zn (T)	All Year	25.3	lb/day	DMax Load	Weekly	Composite	Effluent
Zn (T)	All Year	10.68	lb/day	MAvg Load	Weekly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekly	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekly	Grab	Effluent

Tables 6-13. Permit Limits for Zinifex Clarksville, Inc.

Comments:

Production of zinc metal from the beneficiation of zinc concentrate ore by hydrometallurgical process; production of co-product cadmium metal, sulfuric acid and metallurgically valuable by-products.

12/8/06 Compliance Evaluation Inspection: In compliance:

No operational problems were observed during the inspection. The records and reports were organized and well maintained. In the pH calibration log, all entries contained the date, analyst, and result for each record. The time was missing for some of the entries. The permit requirement to record the date, time, analyst, and result for each record is applicable to this record.

TN0005789 TVA - Cumberland Fossil Plant

Discharger rating: Major
City: Cumberland City
County: Stewart
EFO Name: Nashville
Issuance Date: 1/1/06
Expiration Date: 5/31/10
Receiving Stream(s): Cumberland River at mile 103
HUC-12: 051302050403
Effluent Summary: Ash transport water, treated chemical and nonchemical metal cleaning wastewaters, coal pile runoff, low volume wastes, and storm water runoff through Outfall 001, once through condenser cooling water, miscellaneous equipment cooling and lubricating water, and storm water through Outfall 002, intake screen backwash water through Outfall 004, and chemical and nonchemical metal cleaning wastewaters through Outfall 007
Treatment system: Settling, Chemical Precipitation, Neutralization and Discharge to Surface Water

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ag (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	DMax Conc	Monthly	Grab	Effluent
Cd (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Chloride (as Cl)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Cr (T)	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
Cu (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Dissolved Solids, Total (TDS)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
F (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Fe (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekly	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekly	Instantaneous	Effluent
Hg (T)	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
Mn (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Oil and Grease (Freon EM)	All Year	19	mg/L	DMax Conc	Monthly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	14	mg/L	MAvg Conc	Monthly	Grab	Effluent
Pb (T)	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
Se (T)	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
Sulfate (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
TSS	All Year	96	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	29	mg/L	MAvg Conc	Monthly	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekly	Grab	Effluent

Tables 6-14. Permit Limits for Outfall 001 at TVA - Cumberland Fossil Plant.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Duration of Discharge	All Year	120	Minutes	DMax Load	Weekly	Recorder	Effluent
Flow	All Year		MGD	DMax Load	Weekly	Estimate	Effluent
Flow	All Year		MGD	MAvg Load	Weekly	Estimate	Effluent
IC25 7day Ceriodaphnia Dubia	All Year	100	Percent	DMin Conc	Annually	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	Percent	DMin Conc	Annually	Composite	Effluent
Oxidants Total Residual	All Year	0.019	mg/L	DMax Conc	Weekly	Grab	Effluent
Oxidants Total Residual	All Year	0.011	mg/L	MAvg Conc	Weekly	Grab	Effluent
Temperature (°C)	All Year	36.7	Deg. C	DMax Conc	Daily	Calculated	Effluent
Temperature (°C)	All Year		Deg. C	DMax Conc	Continuous	Recorder	Intake
pH	All Year	9	SU	DMax Conc	Daily	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Daily	Grab	Effluent

Tables 6-15. Permit Limits for Outfall 002 at TVA - Cumberland Fossil Plant.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Cu (T)	All Year	1	mg/L	DMax Conc	1/Batch	Grab	Effluent
Cu (T)	All Year	1	mg/L	MAvg Conc	1/Batch	Grab	Effluent
Fe (T)	All Year	1	mg/L	DMax Conc	1/Batch	Grab	Effluent
Fe (T)	All Year	1	mg/L	MAvg Conc	1/Batch	Grab	Effluent
Flow	All Year		MGD	MAvg Load	1/Batch	Estimate	Effluent

Tables 6-16. Permit Limits for Outfall 007 at TVA - Cumberland Fossil Plant.

Comments

Fossil-fueled steam electric generating plant. Has two coal-fired units with a combined rated generating capacity of 2,600 megawatts.

June 11,2007. Modification to remove compliance date, January 7, 2008, for complete CDS data collection for Court remanded 316(b) Rule. Instead will submit "biological monitoring data collected in accordance with the Permittee's Proposal for Information Collection (PIC) plan as developed under the 316(b) requirements prior to their suspension by EPA."

3/7/06 Compliance Evaluation Inspection: In compliance.

6.4.C. Water Treatment Permits

TN0077666 Water Authority of Dickson County (WADC) - Cumberland River

Discharger rating: Minor
City: Burns
County: Dickson
EFO Name: Nashville
Issuance Date: 10/26/04
Expiration Date: 9/27/09
Receiving Stream(s): Unnamed tributary to Barkley Reservoir (Cheatham Reservoir)
HUC-12: 051302050101
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Ultrafiltration membrane enhanced coagulation system

Segment	TN05130205015T_0999
Name	Barkley Reservoir Misc Tribs
Size	161.5
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Not Assessed), Recreation (Not Assessed), Irrigation (Not Assessed), Livestock Watering and Wildlife (Not Assessed)
Causes	N/A
Sources	N/A

Table 6-17. Stream Segment Information for WADC-Cumberland River.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	0.75	mg/L	DMax Conc	Monthly	Grab	Effluent
Fe (T)	All Year	2	mg/L	DMax Conc	Monthly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	Monthly	Grab	Effluent
TRC	All Year	0.019	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	40	mg/L	DMax Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Monthly	Grab	Effluent

Tables 6-18. Permit Limits for WADC-Cumberland River.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 5 Total Aluminum
- 1 Total Chlorine

Comments
Membrane filtration, turbidity removal WTP

11/21/06 Compliance Evaluation Inspection: In compliance:

- At the time of the inspection the WADC WTP - Turnbull (TN0004855) located in the suburbs of Burns was not in operation. Mr. Michael Chandler, general manger, explained that the plant is operated on a modified evening – night shift schedule.

- The WADC WTP – Cumberland River (TN0077666) located in the rural Dickson County was in operation. The three sequential settling ponds appeared to be well maintained.

- The infestation of mussels caused operational problems at the Cumberland River facility with the water treatment portion of the facility. There were no reported operational problems with the NPDES discharge.

TN0074004 Clarksville WTP

Discharger rating: Minor
City: Clarksville
County: Montgomery
EFO Name: Nashville
Issuance Date: 10/1/04
Expiration Date: 9/27/09
Receiving Stream(s): Cumberland River at mile 132.8
HUC-12: 051302050103
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Aluminum chlorohydrate, chlorine, sodium fluoride, PAC (seasonal), potassium permanganate, sodium hexametaphosphate

Segment	TN05130205015_1000
Name	Barkley Reservoir
Size	37000
Unit	Acres
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Industrial Water Supply (Supporting), Domestic Water Supply (Supporting), Irrigation (Supporting)
Causes	N/A
Sources	N/A

Table 6-19. Stream Segment Information for Clarksville WTP

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	10	mg/L	DMax Conc	Monthly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	Monthly	Grab	Effluent
TRC	All Year	1	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	40	mg/L	DMax Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Monthly	Grab	Effluent

Tables 6-20. Permit Limits for Clarksville STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 1 Total Aluminum
- 1 Settleable Solids

Comments:
9/7/05 Compliance Evaluation Inspection: In compliance

TN0074675 Erin Water Works WTP

Discharger rating: Minor
City: Palmyra
County: Montgomery
EFO Name: Nashville
Issuance Date: 10/1/04
Expiration Date: 9/27/09
Receiving Stream(s): Yellow Creek to Cumberland River at mile 108.3.
HUC-12: 051302050302
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Turbidity removal with aluminum sulfate, sodium hydroxide and sodium hypochlorite

Segment	TN05130205019_1000
Name	Yellow Creek
Size	15.6
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Supporting), Irrigation (Supporting), Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	N/A
Sources	N/A

Table 6-21. Stream Segment Information for Erin Water Works WTP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	0.75	mg/L	DMax Conc	Monthly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	Monthly	Grab	Effluent
TRC	All Year	0.019	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	40	mg/L	DMax Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Monthly	Grab	Effluent

Table 6-22. Permit Limits for Erin Water Works WTP.

Comments:
Turbidity removal WTP

TN0079081 Barge Point Road Water Treatment Plant and Intake

Discharger rating: Minor
City: Clarksville
County: Montgomery
EFO Name: Nashville
Issuance Date: 10/1/04
Expiration Date: 9/27/09
Receiving Stream(s): Unnamed tributary to Barkley Reservoir (Cumberland River) at approx. river mile 124.8
HUC-12: 051302050105
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Water treated with aluminum chlorhydrate, sodium hydroxide, polyphosphate, potassium permanganate, sodium hypochlorite, hydrofluosilic acid, and powder activated carbon

Segment	TN05130205015_1000
Name	Barkley Reservoir
Size	37000
Unit	Acres
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Industrial Water Supply (Supporting), Domestic Water Supply (Supporting), Irrigation (Supporting)
Causes	N/A
Sources	N/A

Table 6-23. Stream Segment Information for Barge Point Road Water Treatment Plant and Intake.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	10	mg/L	DMax Conc	Monthly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Monthly	Estimate	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	Monthly	Grab	Effluent
TRC	All Year	1	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	40	mg/L	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent

Table 6-24. Permit Limits for Barge Point Road Water Treatment Plant and Intake.

Comments:
Turbidity removal WTP

TN0005398 Dover Water Treatment Plant

Discharger rating: Minor
City: Dover
County: Montgomery
EFO Name: Nashville
Issuance Date: 10/1/04
Expiration Date: 9/27/09
Receiving Stream(s): Barkley Reservoir at Cumberland River mile 88.9
HUC-12: 051302050405
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Alum, polymer, chlorine

Segment	TN05130205015_1000
Name	Barkley Reservoir
Size	37000
Unit	Acres
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Industrial Water Supply (Supporting), Domestic Water Supply (Supporting), Irrigation (Supporting)
Causes	N/A
Sources	N/A

Table 6-25. Stream Segment Information for Dover WTP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	10	mg/L	DMax Conc	Monthly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	Monthly	Grab	Effluent
TRC	All Year	1	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	40	mg/L	DMax Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Monthly	Grab	Effluent

Table 6-26. Permit Limits for Dover WTP.

Comments:
Turbidity removal WTP
5/23/07 Compliance Evaluation Inspection: In compliance:

- Outfall ID sign somewhat obscured by vegetation; needs trimming. Both sludge basins nearly full; not alternating them; need SOP for sludge handling. All else satisfactory.